1 SPECIFICATION OF SUPPLY

1.1 AHAY35/4

Integrated package consisting of a water-ammonia absorption heat pump with brushless low-noise fan, fed with natural gas or LPG, air-water version, modulating and condensing, for hot water production up to a delivery temperature of 65 °C (70 °C at 50% of maximum thermal input), and a modulating condensing boiler with sealed chamber, effective power 33,4 kW, fed with natural gas or LPG, for hot water production up to a delivery temperature of 88 °C, suitable for outdoor installation and equipped with independent high head water pumps for each of the appliances comprising it, in a 4-pipe plumbing configuration (separate water circuits for heat pump and boiler).
Heat output for each unit (A7W35): 77,4 kW
GUE efficiency (A7W35): 131 %
Heat input: 59,2 kW
Electrical power absorption nominal: 1,19 kW
Power supply: 230 V - 50 Hz single-phase
Weight: 477 kg
Dimensions: width 1425 mm, depth 1260 mm, height 1445 mm

1.2 AHAY35/4 S1

Integrated package consisting of a water-ammonia absorption heat pump with brushless low-noise fan, fed with natural gas or LPG, air-water version, modulating and condensing, for hot water production up to a delivery temperature of 65 °C (70 °C at 50% of maximum thermal input), and a modulating condensing boiler with sealed chamber, effective power 33,4 kW, fed with natural gas or LPG, for hot water production up to a delivery temperature of 88 °C, suitable for outdoor installation and equipped with independent high head water pumps for each of the appliances comprising it, in a 4-pipe plumbing configuration (separate water circuits for heat pump and boiler).
Heat output for each unit (A7W35): 77,4 kW
GUE efficiency (A7W35): 131 %
Heat input: 59,2 kW
Electrical power absorption nominal: 1,12 kW
Power supply: 230 V - 50 Hz single-phase
Weight: 487 kg
Dimensions: width 1425 mm, depth 1260 mm, height 1520 mm

1.3 AHAY35/2

Integrated package consisting of a water-ammonia absorption heat pump, fed with natural gas or LPG, air-water version, modulating and condensing, for hot water production up to a delivery temperature of 65 °C (70 °C at 50% of maximum thermal input), and a modulating condensing boiler with sealed chamber, effective power 33,4 kW, fed with natural gas or LPG, for hot water production up to a delivery temperature of 88 °C, suitable for outdoor installation and equipped with independent high head water pumps for each of the appliances comprising it, in a 2-pipe plumbing configuration (single water circuit for heat pump and boiler).
Heat output for each unit (A7W35): 77,4 kW
GUE efficiency (A7W35): 131 %
Heat input: 59,2 kW
Electrical power absorption nominal: 1,19 kW
Power supply: 230 V - 50 Hz single-phase
Weight: 477 kg
Dimensions: width 1425 mm, depth 1260 mm, height 1445 mm

1.4 AHAY35/2 S1

Integrated package consisting of a water-ammonia absorption heat pump with brushless low-noise fan, fed with natural gas or LPG, air-water version, modulating and condensing, for hot water production up to a delivery temperature of 65 °C (70 °C at 50% of maximum thermal input), and a modulating condensing boiler with sealed chamber, effective power 33,4 kW, fed with natural gas or LPG, for hot water production up to a delivery temperature of 88 °C, suitable for outdoor installation and equipped with independent high head water pumps for each of the appliances comprising it, in a 2-pipe plumbing configuration (single water circuit for heat pump and boiler).
Heat output for each unit (A7W35): 77,4 kW
GUE efficiency (A7W35): 131 %
Heat input: 59,2 kW
Electrical power absorption nominal: 1,12 kW
Power supply: 230 V - 50 Hz single-phase
Weight: 487 kg
Dimensions: width 1425 mm, depth 1260 mm, height 1520 mm

1.5 AHAY50/4

Integrated package consisting of a water-ammonia absorption heat pump with brushless low-noise fan, fed with natural gas or LPG, air-water version, modulating and condensing, for hot water production up to a delivery temperature of 65 °C (70 °C at 50% of maximum thermal input), and a modulating condensing boiler with sealed chamber, effective power 49,2 kW, fed with natural gas or LPG, for hot water production up to a delivery temperature of 88 °C, suitable for outdoor installation and equipped with independent high head water pumps for each of the appliances comprising it, in a 4-pipe plumbing configuration (separate water circuits for heat pump and boiler).
Heat output for each unit (A7W35): 94,3 kW
GUE efficiency (A7W35): 125 %
Heat input: 75,2 kW
Electrical power absorption nominal: 1,22 kW
Power supply: 230 V - 50 Hz single-phase
Weight: 487 kg
Dimensions: width 1425 mm, depth 1260 mm, height 1445 mm

1.6 AHAY50/4 S1

Integrated package consisting of a water-ammonia absorption heat pump with brushless low-noise fan, fed with natural gas or LPG, air-water version, modulating and condensing, for hot water production up to a delivery temperature of 65 °C (70 °C at 50% of maximum thermal input), and a modulating condensing boiler with sealed chamber, effective power 49,2 kW, fed with natural gas or LPG, for hot water production up to a delivery temperature of 88 °C, suitable for outdoor installation and equipped with independent high head water pumps for each of the appliances comprising it, in a 4-pipe plumbing configuration (separate water circuits for heat pump and boiler).
Heat output for each unit (A7W35): 94,3 kW
GUE efficiency (A7W35): 125 %
Heat input: 75,2 kW
Electrical power absorption nominal: 1,15 kW
Power supply: 230 V - 50 Hz single-phase
Weight: 497 kg
Dimensions: width 1425 mm, depth 1260 mm, height 1520 mm

1.7 AHAY50/2

Integrated package consisting of a water-ammonia absorption heat pump, fed with natural gas or LPG, air-water version, modulating and condensing, for hot water production up to a delivery temperature of 65 °C (70 °C at 50% of maximum thermal input), and a modulating condensing boiler with sealed chamber, effective power 49,2 kW, fed with natural gas or LPG, for hot water production up to a delivery temperature of 88 °C, suitable for outdoor installation and equipped with independent high head water pumps for each of the appliances comprising it, in a 2-pipe plumbing configuration (single water circuit for heat pump and boiler).
Heat output for each unit (A7W35): 94,3 kW
GUE efficiency (A7W35): 125 %
Heat input: 75,2 kW
Electrical power absorption nominal: 1,22 kW
Power supply: 230 V - 50 Hz single-phase
Weight: 487 kg
Dimensions: width 1425 mm, depth 1260 mm, height 1445 mm

1.8 AHAY50/2 S1

Integrated package consisting of a water-ammonia absorption heat pump with brushless low-noise fan, fed with natural gas or LPG, air-water version, modulating and condensing, for hot water production up to a delivery temperature of 65 °C (70 °C at 50% of maximum thermal input), and a modulating condensing boiler with sealed chamber, effective power 49,2 kW, fed with natural gas or LPG, for hot water production up to a delivery temperature of 88 °C, suitable for outdoor installation and equipped with independent high head water pumps for each of the appliances comprising it, in a 2-pipe plumbing configuration (single water circuit for heat pump and boiler).
Heat output for each unit (A7W35): 94,3 kW
GUE efficiency (A7W35): 125 %
Heat input: 75,2 kW
Electrical power absorption nominal: 1,15 kW
Power supply: 230 V - 50 Hz single-phase
Weight: 497 kg
Dimensions: width 1425 mm, depth 1260 mm, height 1520 mm

2 FEATURES

2.1 FEATURES

The Gitié 2.0 AHAY package consists of a GAHP A heat pump and a AY 35 (AHAY35) or AY 50 (AHAY50) condensing boiler.
Each of the units making up the package is equipped with an independent high head water pump.
For each of the versions (Table 2.1 *p. 2*), the heat pump is available with a standard or low-noise fan.
In all versions, the operation of the units may be simultaneous or independent.
The 2-pipe versions (with a single hydraulic circuit) are equipped with check valves serving each of the units making up the Gitié 2.0 AHAY package.

Table 2.1 *Gitié AHAY package versions*

Version	Boiler	Pipes	Hydraulic circuits	Fan
AHAY35/4	AY 35	4	independent	standard
AHAY35/4 S1	AY 35	4	independent	low-noise S1
AHAY35/2	AY 35	2	single	standard
AHAY35/2 S1	AY 35	2	single	low-noise S1
AHAY50/4	AY 50	4	independent	standard
AHAY50/4 S1	AY 50	4	independent	low-noise S1
AHAY50/2	AY 50	2	single	standard
AHAY50/2 S1	AY 50	2	single	low-noise S1

2.1.1 GAHP-A unit features

2.1.1.1 Operation

Based on the thermodynamic water-ammonia absorption cycle (H_20–NH_3), the appliance produces hot water using outdoor air as a renewable energy source (cold source) and natural gas (or LPG) as primary energy.
The thermodynamic cycle takes place within a hermetically sealed circuit, in welded construction, perfectly tight, factory-tested, which does not require any maintenance or coolant top-ups.
The GAHP A appliance can supply hot water up to 65 °C for heating and/or domestic hot water systems.

2.1.1.2 Mechanical and thermo-hydraulic components

- Steel sealed circuit, externally treated with epoxy paint.
- Sealed combustion chamber (type C) suitable for outdoor installations.
- Metal mesh radiant burner, equipped with ignition electrodes and flame detection, managed by an electronic flame control box.
- Titanium stainless steel shell-and-tube water heat exchanger, externally insulated.
- Stainless steel, shell-and-tube recovery exchanger of flue gas latent heat.
- Air exchanger with finned coil, with steel pipe and aluminium fins.
- Automatic microprocessor-controlled finned coil defrosting valve.
- Low power consumption refrigerant fluid oil pump.
- Standard or low-noise S1 fan.

2.1.1.3 Control and safety devices

- S61 electronic board with microprocessor, LCD display and knob.
- Mod10 additional electronic board (integrated in S61).
- Auxiliary W10 electronic board.
- System water flowmeter.
- Generator limit thermostat, with manual reset.
- Flue gas thermostat, with manual reset.
- Generator fins temperature probe.
- Sealed circuit safety relief valve.
- Bypass valve, between high and low-pressure circuits.
- Ionization flame control box.
- Double shutter electric gas valve.
- Condensate drain obstruction sensor.

2.1.2 AY unit features

2.1.2.1 Operation

The AY appliances are outdoor condensing boilers capable of producing hot water up to 88 °C.
There are two models that can be part of the Gitié AHAY unit: AY 35 and AY 50.

2.1.2.2 Mechanical and thermo-hydraulic components

- Integrated spiral single tube stainless steel heat exchanger.
- Premix modulating burner with 1:9 ratio (AY 35), 1:10 (AY 50).
- Automatic air vent valve.
- High efficiency water pump.
- System drain tap.

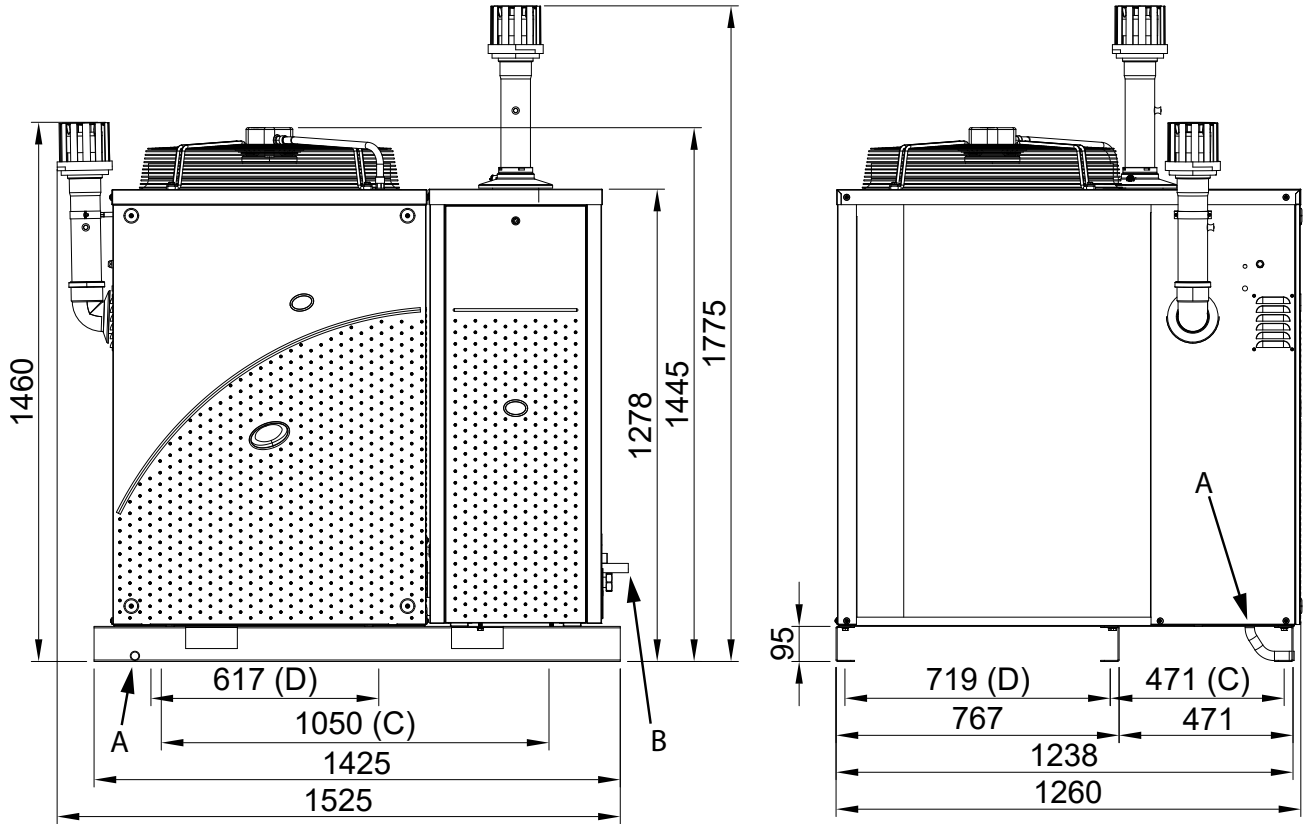
- Water temperature probes.
- Condensate drain siphon.
- Flue gas exhaust duct with relevant terminal, for type B53P configuration.

2.1.2.3 Control and safety devices

- Flue safety thermal fuse.
- Gas solenoid valve.
- Safety thermostat.
- Safety valve.
- Water differential pressure switch.
- Expansion tank.
- Outdoor temperature probe.

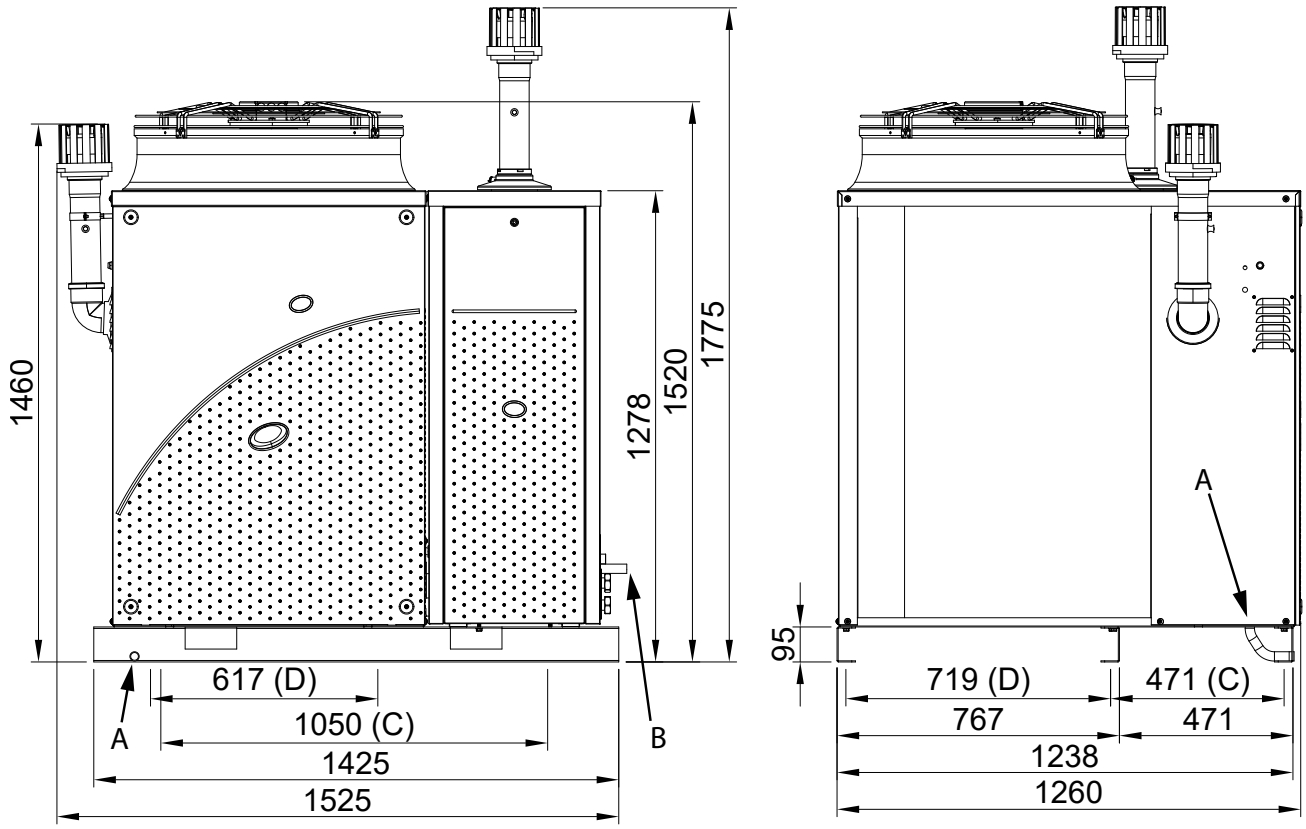
2.2 DIMENSIONS

Figure 2.1 *Dimensions (standard fan)*



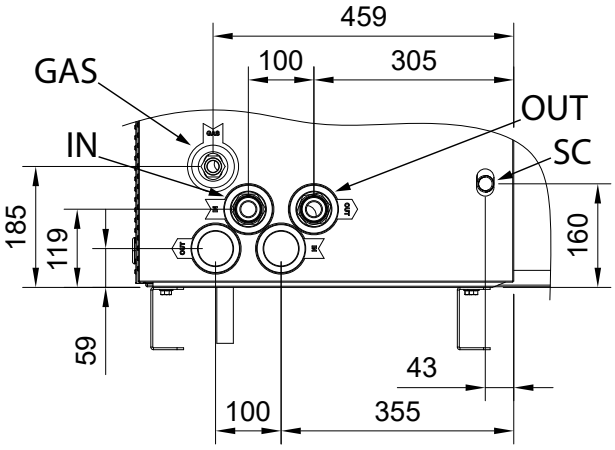
A GAHP A condensate drain
B AY condensate drain
C Centre distance of holes for front vibration damper supports
D Centre distance of holes for rear vibration damper supports

Figure 2.2 *Dimensions (low-noise fan)*



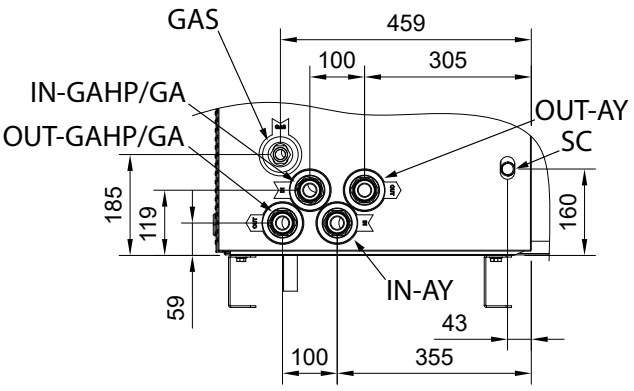
A GAHP A condensate drain
B AY condensate drain
C Centre distance of holes for front vibration damper supports
D Centre distance of holes for rear vibration damper supports

Figure 2.3 *Gitié /2 service plate - Hydraulic/gas connections detail*



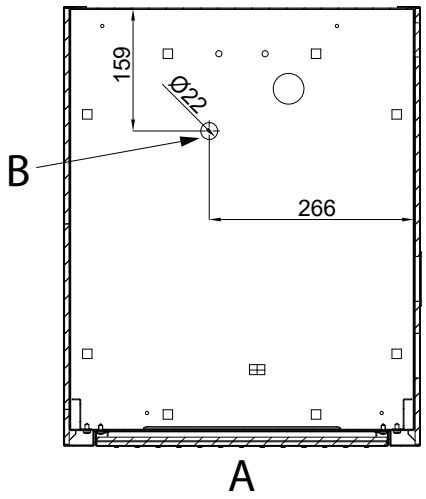
OUT Water outlet connection Ø 1 1/4" F
IN Water inlet connection Ø 1 1/4" F
SC AY condensate drain connection (outside diameter 25 mm, inside 21 mm)
GAS Gas connection Ø 3/4" M

Figure 2.4 *Gitié /4 service plate - Hydraulic/gas connections detail*



OUT-AY AY water outlet connection Ø 1 1/4" F
IN-AY AY water inlet connection Ø 1 1/4" F
OUT-GAHPGA GAHP/GA water outlet connection Ø 1 1/4" F
IN-GAHP/GA GAHP/GA water inlet connection Ø 1 1/4" F
SC AY condensate drain connection (outside diameter 25 mm, inside 21 mm)
GAS Gas connection Ø 3/4" M

Figure 2.5 *Service plate - Detail of bottom plate*



A AY front panel
B Boiler safety valve drain outside Ø 20 mm, inside Ø 14 mm

2.3 CONTROLS

2.3.1 Control device

The appliance may only work if it is connected to a control device, selected from:
1. DDC control
2. external requests

2.3.2 DDC Controller

The DDC control is able to manage one or more Robur appliances in ON/OFF mode (GAHP heat pumps, GA chillers) or modulating mode (AY boilers).
DDC functionality may be extended with auxiliary Robur devices RB100 and RB200 (e.g. service requests, DHW production, third party generator control, probe control, system valves or circulating pumps, ...).

For more details see Section C01.11.

2.3.3 External requests

The appliance may also be controlled via generic request devices (e.g. thermostats, clocks, buttons, contactors...) fitted with voltage-free NO contacts. This system only provides elementary control, without some of the important functions of DDC control. Control of the cascade between GAHP/GA and AY is dependent on the opening/closing of the requests to the units making up the Gitié 2.0 AHAY (GAHP A and AY boiler). The AY boiler retains the possibility of operating in power modulation.

2.4 PRESSURE DROPS

Please refer to the technical data (Paragraph 3.1 *p. 9*) for the residual heads of the individual appliances at nominal flow.

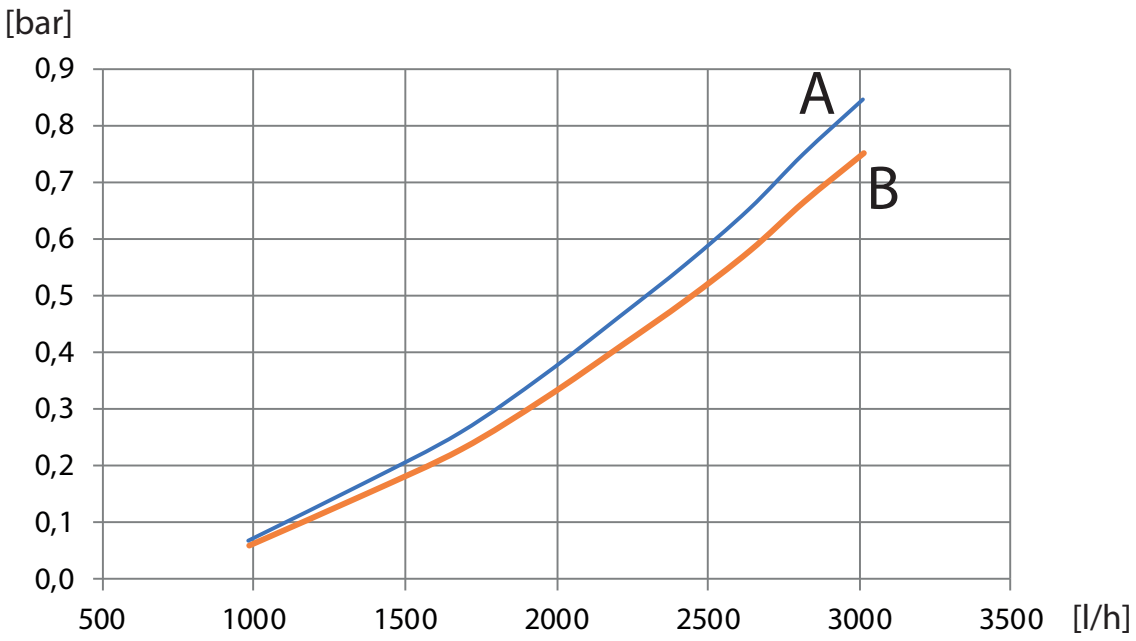
2.4.1 GAHP A

Table 2.2 *GAHP A and GAHP A Indoor pressure drops*

Hot water flow	Heat transfer fluid temperature at outlet		
	35 °C	50 °C	60 °C
	bar	bar	bar
2000 l/h	0,23	0,21	0,19
2500 l/h	0,33	0,31	0,29
3000 l/h	0,46	0,43	0,40
4000 l/h	0,78	0,72	0,67

2.4.2 AY 35

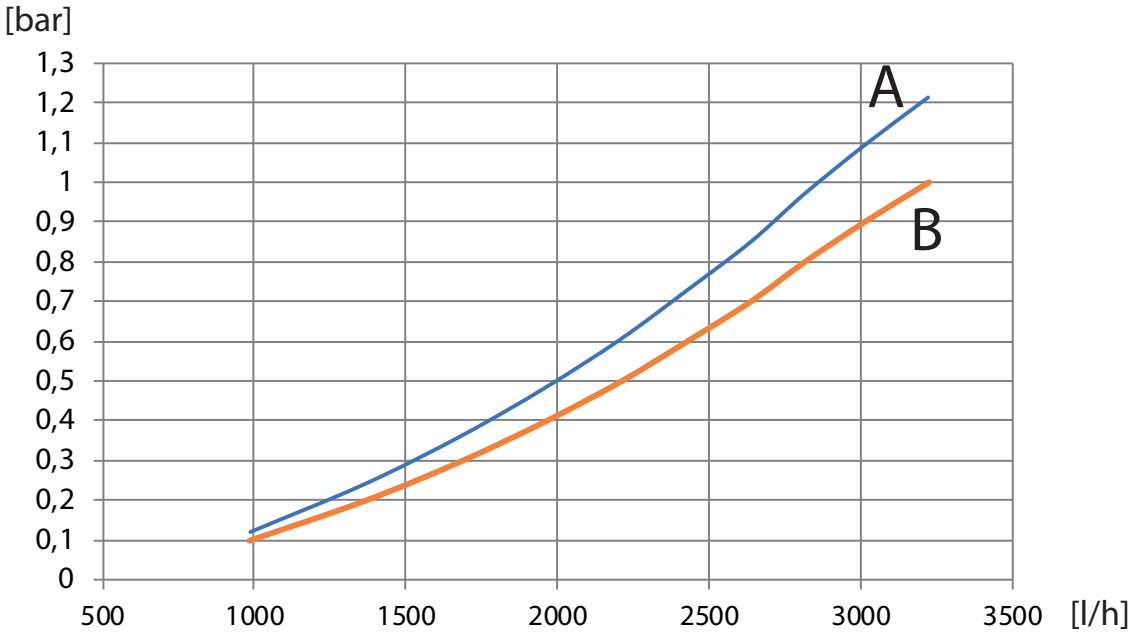
Figure 2.6 *Available head and pressure drop of the boiler*



A Boiler pressure drop with 20% glycol water
B Boiler pressure drop with no glycol in water

2.4.3 AY 50

Figure 2.7 *Pressure drop AY 50 and AY 100*

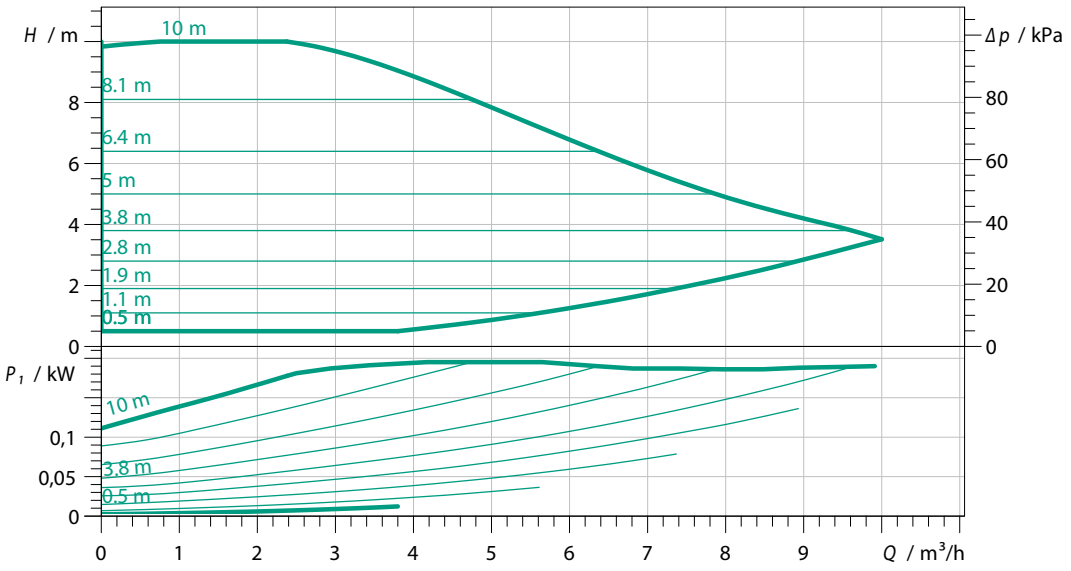


A Boiler pressure drop with 35% glycol water

B Boiler pressure drop with no glycol in water

2.5 CIRCULATING PUMP CHARACTERISTIC CURVES

Figure 2.8 *Oversized pressure head circulating pump characteristic curves*



2.6 PERFORMANCES

2.6.1 AHAY35

Table 2.3 *p. 7* shows the heat output at full load and stable operation, depending on the hot water delivery temperature to the system and outdoor temperature.

Table 2.3 *Gitié AHAY35 heat output*

Outdoor temperature	Water delivery temperature						
	35 °C	40 °C	45 °C	50 °C	55 °C	60 °C	65 °C
	kW	kW	kW	kW	kW	kW	kW
-20 °C	69,9	67,0	64,8	62,4	59,9	57,1	55,8
-15 °C	71,2	68,3	66,1	63,7	61,1	58,3	57,1
-10 °C	72,4	69,6	67,3	64,9	62,4	59,6	58,4
-5 °C	76,4	73,3	70,4	67,4	64,8	61,9	59,6
0 °C	76,9	74,7	72,3	69,8	66,9	63,6	61,4
5 °C	77,4	75,5	74,0	72,2	68,9	65,4	63,4
7 °C	77,4	75,8	74,5	73,0	69,8	66,4	64,3
10 °C	77,4	76,2	74,9	73,5	70,8	67,8	65,7
15 °C	77,6	76,9	75,8	74,5	72,5	70,2	67,9
20 °C	77,6	76,9	76,0	74,9	73,7	71,9	70,3
25 °C	77,7	77,0	76,2	75,1	74,1	72,6	71,4
30 °C	77,8	77,1	76,3	75,2	74,3	72,8	71,6
35 °C	77,9	77,2	76,4	75,3	74,4	72,9	71,7

Table 2.4 *p. 7* shows the GUE at full load and stable operation, depending on the hot water delivery temperature to the system and outdoor temperature.

Table 2.4 *Gitié AHAY35 efficiency*

Outdoor temperature	Water delivery temperature						
	35 °C	40 °C	45 °C	50 °C	55 °C	60 °C	65 °C
	%	%	%	%	%	%	%
-20 °C	118	113	109	105	101	96	94
-15 °C	120	115	112	108	103	99	96
-10 °C	122	117	114	110	105	101	99
-5 °C	129	124	119	114	109	105	101
0 °C	130	126	122	118	113	108	104
5 °C	131	128	125	122	116	110	107
7 °C	131	128	126	123	118	112	109
10 °C	131	129	127	124	120	115	111
15 °C	131	130	128	126	122	119	115
20 °C	131	130	128	126	124	121	119
25 °C	131	130	129	127	125	123	121
30 °C	131	130	129	127	125	123	121
35 °C	132	130	129	127	126	123	121

Please consider that, according to the actual heating request, the appliance may often need to operate under partial load conditions and in non-stationary operation.

2.6.2 AHAY50

Table 2.5 *p. 7* shows the heat output at full load and stable operation, depending on the hot water delivery temperature to the system and outdoor temperature.

Table 2.5 *Gitié AHAY50 heat output*

Outdoor temperature	Water delivery temperature						
	35 °C	40 °C	45 °C	50 °C	55 °C	60 °C	65 °C
	kW	kW	kW	kW	kW	kW	kW
-20 °C	86,9	83,8	81,4	78,7	76,0	72,8	71,4
-15 °C	88,2	85,0	82,6	80,0	77,2	74,0	72,7
-10 °C	89,4	86,3	83,9	81,2	78,5	75,3	74,0
-5 °C	93,3	90,0	87,0	83,7	80,8	77,6	75,2
0 °C	93,8	91,4	88,9	86,1	82,9	79,4	77,0
5 °C	94,3	92,2	90,5	88,5	85,0	81,1	79,0
7 °C	94,3	92,5	91,0	89,3	85,9	82,1	79,9
10 °C	94,3	92,9	91,5	89,9	86,9	83,5	81,3
15 °C	94,6	93,6	92,3	90,8	88,6	85,9	83,5
20 °C	94,6	93,7	92,6	91,2	89,8	87,6	85,9
25 °C	94,7	93,8	92,8	91,4	90,2	88,3	87,0
30 °C	94,8	93,9	92,9	91,5	90,4	88,5	87,2
35 °C	94,9	94,0	93,0	91,6	90,5	88,6	87,3

Table 2.6 *p. 8* shows the GUE at full load and stable operation, depending on the hot water delivery temperature to the system and outdoor temperature.

Table 2.6 *Gitié AHAY50 efficiency*

Outdoor temperature	Water delivery temperature						
	35 °C	40 °C	45 °C	50 °C	55 °C	60 °C	65 °C
	%	%	%	%	%	%	%
-20 °C	116	111	108	105	101	97	95
-15 °C	117	113	110	106	103	98	97
-10 °C	119	115	112	108	104	100	98
-5 °C	124	120	116	111	108	103	100
0 °C	125	122	118	115	110	106	102
5 °C	125	123	120	118	113	108	105
7 °C	125	123	121	119	114	109	106
10 °C	125	124	122	119	116	111	108
15 °C	126	124	123	121	118	114	111
20 °C	126	125	123	121	119	116	114
25 °C	126	125	123	122	120	117	116
30 °C	126	125	123	122	120	118	116
35 °C	126	125	124	122	120	118	116

Please consider that, according to the actual heating request, the appliance may often need to operate under partial load conditions and in non-stationary operation.

2.7 INAIL SAFETY APPLIANCES

The kit is only available on appliances intended for the Italian market.

3 TECHNICAL DATA

3.1 AHAY INTEGRATED PACKAGE TECHNICAL DATA

Table 3.1 *Gitié AHAY technical data*

				AHAY35/2	AHAY35/2 S1	AHAY35/4	AHAY35/4 S1	AHAY50/2	AHAY50/2 S1	AHAY50/4	AHAY50/4 S1
Heating operation											
Heat input	real		kW	59,2				75,2			
Heat output for each unit	Outdoor temperature/ Water outlet temperature	A7W35	kW	77,4				94,3			
		A7W40	kW	75,8				92,5			
		A7W50	kW	73,0				89,3			
		A7W65	kW	64,3				79,9			
		A-7W50	kW	66,7				83,0			
GUE efficiency	Outdoor temperature/ Water outlet temperature	A7W35	%	131				125			
		A7W40	%	128				123			
		A7W50	%	123				119			
		A7W65	%	109				106			
		A-7W50	%	113				110			
Water flow rate 4 pipes	nominal (AY)		l/h	2600				2350			
	minimum (AY)		l/h	1200				1500			
	nominal (GAHP)		l/h	2500							
	minimum (GAHP)		l/h	1400							
Water flow rate 2 pipes	nominal		l/h	5100				4850			
	minimum		l/h	2600				2900			
Pressure drop heating mode	AY	at nominal water flow	bar	0,57 (1)							
	GAHP	at nominal water flow (A7W50)	bar	0,31 (1)							
Residual pressure head at nominal flow rate	version /4 GAHP		bar	-		0,70		-		0,70	
	version /4 AY		bar	-		0,44		-		0,44	
	version /2		bar	0,42		-		0,42		-	
Hot water outlet temperature	maximum for heating		°C	65 (2)							
	maximum for DHW		°C	88							
Hot water inlet temperature	maximum for heating		°C	55							
	maximum for DHW		°C	70							
	minimum temperature in continuous operation		°C	30 (3)							

(1) For flows other than nominal see design manual, Paragraph "Pressure losses".
(2) Value in combined operation. 88 °C for boiler-only operation.
(3) In transient operation, lower temperatures are allowed.
(4) As an option, a version for operation down to -25 °C is available.
(5) As an option, a version for operation down to -30 °C is available.
(6) Gas not available for the appliance.
(7) Maximum sound pressure levels in free field, with directivity factor 2, obtained from the sound power level in compliance with standard EN ISO 9614. Data referred to 50 °C outlet temperature.
(8) Sound power values detected in compliance with the intensity measurement methodology set forth by standard EN ISO 9614. Data referred to 50 °C outlet temperature.

			AHAY35/2	AHAY35/2 S1	AHAY35/4	AHAY35/4 S1	AHAY50/2	AHAY50/2 S1	AHAY50/4	AHAY50/4 S1
Outdoor temperature (dry bulb)	maximum	°C	45							
	minimum	°C	-15 (4)		-15 (5)		-15			
Electrical specifications										
Power supply	voltage	V	230							
	type	-	single-phase							
	frequency	Hz	50							
Electrical power absorption	nominal	kW	1,19	1,12	1,19	1,12	1,22	1,15	1,22	1,15
	minimum	kW	-	0,85	-	0,85	-	0,88	-	0,88
Degree of protection	IP	-	25							
Installation data										
Gas consumption	G20 natural gas (nominal)	m^3/h	6,32				8,01			
	G25 (nominal)	m^3/h	7,34				9,31			
	G25.1 (nominal)	m^3/h	- (6)				9,30			
	G25.3 (nominal)	m^3/h	7,18				9,10			
	G27 (nominal)	m^3/h	- (6)				9,77			
	G2.350 (nominal)	m^3/h	- (6)				11,12			
	G30 (nominal)	kg/h	4,71				5,97			
	G31 (nominal)	kg/h	4,64				5,88			
Dimensions	width	mm	1425							
	height	mm	1445	1520	1445	1520	1445	1520	1445	1520
	depth	mm	1260							
Gas connection	thread	"	3/4							
	type	-	M							
Water fitting	thread	"	1 1/4							
	type	-	F							
Type of installation (heat pump)	type of installation	-	B23P, B33, B53P							
Type of installation (boiler)	type of installation	-	B23, B23P, B33, B53							
Heat pump flue gas exhaust	diameter (Ø)	mm	80							
	residual head	Pa	80							
Boiler flue gas exhaust	diameter (Ø)	mm	80							
	residual head	Pa	91				100			
Weight	in operation	kg	477	487	477	487	490	500	490	500
minimum storage temperature		°C	-30							
sound pressure L_p at 5 metres (max)		dB(A)	57,6 (7)	52,0 (7)	57,6 (7)	52,0 (7)	57,6 (7)	52,0 (7)	57,6 (7)	52,0 (7)
sound pressure L_p at 5 metres (min)		dB(A)	-	49,0 (7)	-	49,0 (7)	-	49,0 (7)	-	49,0 (7)
sound power L_w (max)		dB(A)	79,6 (8)	74,0 (8)	79,6 (8)	74,0 (8)	79,6 (8)	74,0 (8)	79,6 (8)	74,0 (8)
sound power L_w (min)		dB(A)	-	71,0 (8)	-	71,0 (8)	-	71,0 (8)	-	71,0 (8)
expansion tank volume		l	10							
maximum flow rate of heat pump flue gas condensate		l/h	4,0							

(1) For flows other than nominal see design manual, Paragraph "Pressure losses".
(2) Value in combined operation. 88 °C for boiler-only operation.
(3) In transient operation, lower temperatures are allowed.
(4) As an option, a version for operation down to -25 °C is available.
(5) As an option, a version for operation down to -30 °C is available.
(6) Gas not available for the appliance.
(7) Maximum sound pressure levels in free field, with directivity factor 2, obtained from the sound power level in compliance with standard EN ISO 9614. Data referred to 50 °C outlet temperature.
(8) Sound power values detected in compliance with the intensity measurement methodology set forth by standard EN ISO 9614. Data referred to 50 °C outlet temperature.

			AHAY35/2	AHAY35/2 S1	AHAY35/4	AHAY35/4 S1	AHAY50/2	AHAY50/2 S1	AHAY50/4	AHAY50/4 S1
maximum flow rate of boiler flue gas condensate		l/h	3,4				5,0			
maximum water pressure in operation		bar	3,0				2,5			
water content inside the appliance		l	12				15			
NO_x emission class	GAHP	-	5							
	AY	-	6							

(1) For flows other than nominal see design manual, Paragraph "Pressure losses".
(2) Value in combined operation. 88 °C for boiler-only operation.
(3) In transient operation, lower temperatures are allowed.
(4) As an option, a version for operation down to -25 °C is available.
(5) As an option, a version for operation down to -30 °C is available.
(6) Gas not available for the appliance.
(7) Maximum sound pressure levels in free field, with directivity factor 2, obtained from the sound power level in compliance with standard EN ISO 9614. Data referred to 50 °C outlet temperature.
(8) Sound power values detected in compliance with the intensity measurement methodology set forth by standard EN ISO 9614. Data referred to 50 °C outlet temperature.

4 DESIGN

Compliance with installation standards

Design and installation must comply with applicable regulations in force, based on the installation Country and site, in matters of safety, design, implementation and maintenance of:

- heating systems
- cooling systems
- gas systems
- flue gas exhaust
- flue gas condensate drain

Design and installation must also comply with the manufacturer's provisions.

4.1 APPLIANCE POSITIONING

Please refer to Section C01.02.

4.2 PLUMBING DESIGN

Please refer to Section C01.03.

4.3 WATER PUMP

Appliances in the Gitié 2.0 range are equipped with high head water pumps, already mounted and wired, the characteristic curve of which is shown in Figure 2.8 *p. 6*.
Pressure drops within the appliance are given in Paragraph 2.4 *p. 5*.

4.4 SYSTEM WATER QUALITY

Please refer to Section C01.05.

4.5 ANTIFREEZE PROTECTION

Please refer to Section C01.06.

4.6 FUEL GAS SUPPLY

Please refer to Section C01.08.

4.7 COMBUSTION PRODUCTS EXHAUST

Compliance with standards

The appliance is approved for connection to a combustion products exhaust duct for the types shown in Paragraph 3.1 *p. 9*.

4.7.1 GAHP A

4.7.1.1 Flue gas exhaust connection

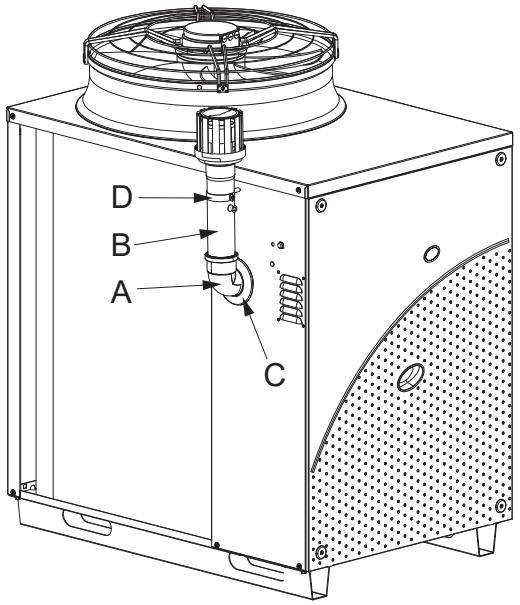
Ø 80 mm (with gasket), on the left, at the top (Figure 4.1 *p. 12*).

4.7.1.2 Flue gas exhaust kit

The appliance is supplied with flue gas exhaust kit, to be fitted by the installer, including (Figure 4.1 *p. 12*):

- ► 1 pipe Ø 80 mm, length 300 mm, with terminal and socket for flue gas analysis
- ► 1 support collar
- ► 1 90° elbow Ø 80 mm
- ► 1 rain cover

Figure 4.1 *Flue gas exhaust*



A 90° elbow Ø 80
B Pipe Ø 80 300 mm with terminal
C Rain cover
D Collar

4.7.2 AY

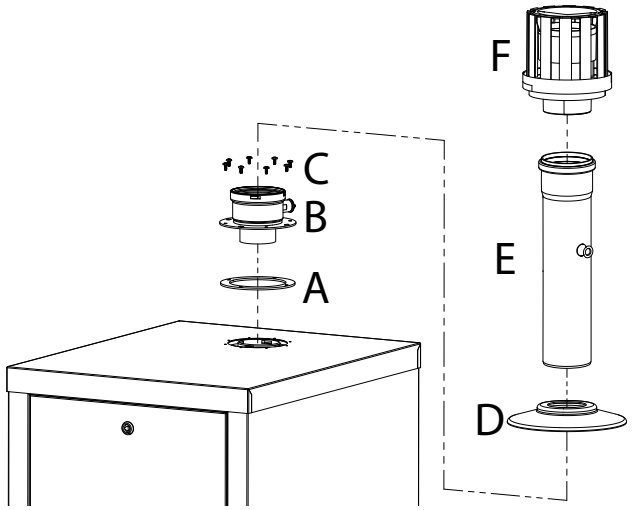
4.7.2.1 Flue gas exhaust connection

Ø 80 mm (with gasket), at the top (Figure 4.2 *p. 13*).
The rain cover, supplied, must be mounted on the flue gas exhaust pipe to protect the internal components of the boiler (detail E, Figure 4.2 *p. 13*).
The combustion air is drawn from the outside of the casing by means of special louvres.

4.7.2.2 Flue gas exhaust kit

The appliance, supplied in B53P configuration, is standard supplied with a DN80 flue gas kit, to be set up by the installer.

Figure 4.2 *Flue gas exhaust kit*



A	Gasket of the flanged socket	D	Rain cover
B	Flanged socket Ø 60/80 mm	E	Flue gas exhaust pipe
C	Fixing screws of the flanged socket	F	Terminal

4.7.3 Possible flue

If required, the appliance may be connected to a flue appropriate for condensing appliances.

► If the flue gas exhaust of the GAHP A and that of the AY boiler are connected to a single flue, it is mandatory to install a flap valve on the exhaust of each.

For more details see Section C01.09.

4.8 FLUE GAS CONDENSATE DRAIN

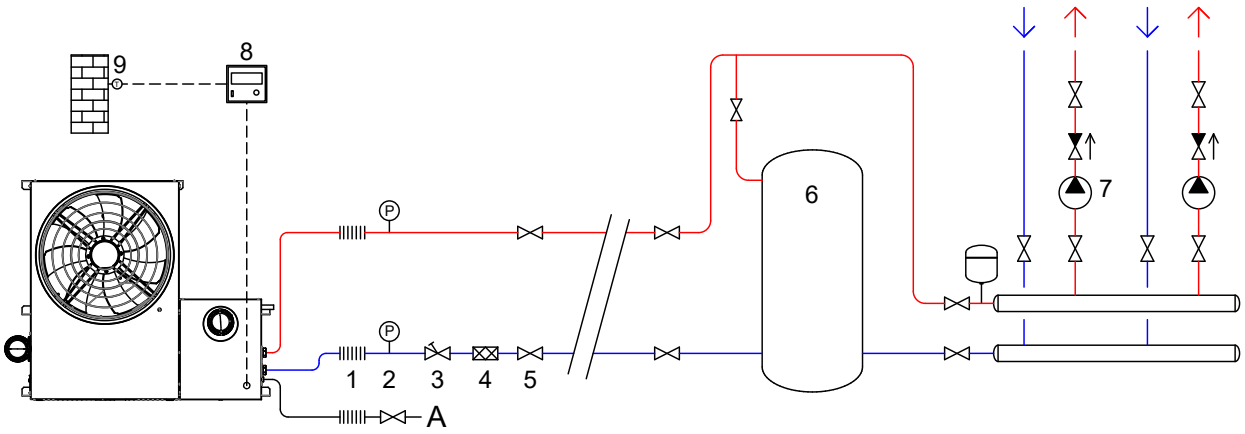
Please refer to Section C01.09.

4.9 ELECTRICAL AND CONTROL CONNECTIONS

Please refer to Section C01.10.

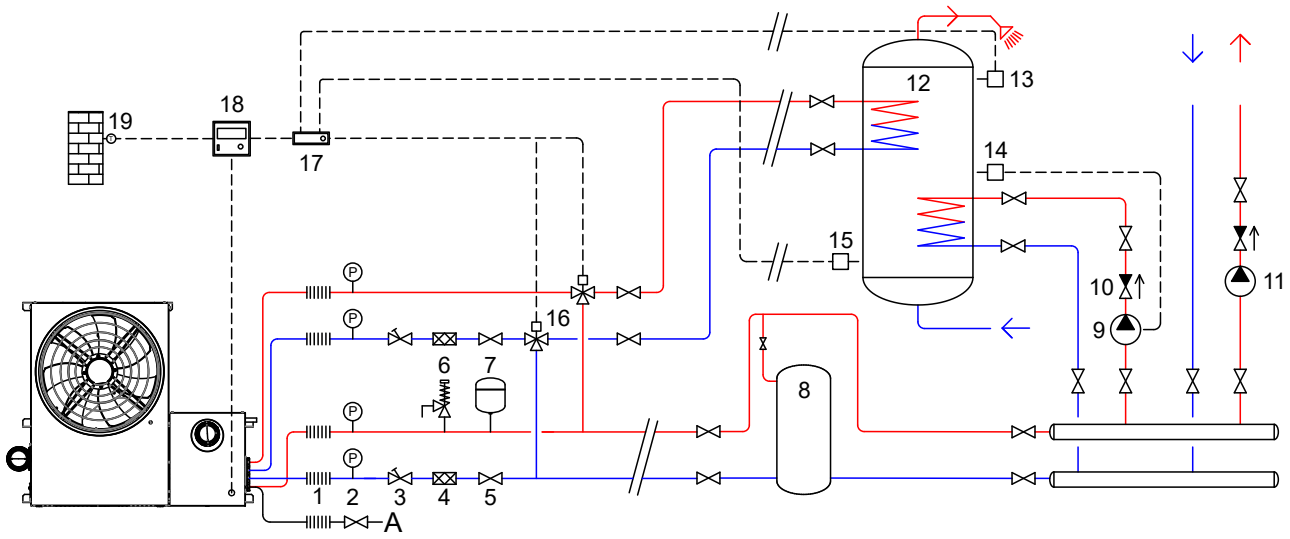
4.10 EXAMPLE DIAGRAMS

Figure 4.3 *Hydraulic diagram Gitié AHAY /2*



1	Anti-vibration connection	5	Shut-off valve	9	Outdoor temperature probe
2	Pressure gauge	6	Buffer tank (and hydraulic separator)	A	Gas connection
3	Flow regulation valve	7	Heating/Cooling circuit water pump		
4	Sludge filter	8	DDC panel		

Figure 4.4 *Hydraulic diagram Gitié AHAY /4*



1 Anti-vibration connection
2 Pressure gauge
3 Flow regulation valve
4 Sludge filter
5 Shut-off valve
6 Safety valve (GAHP/GA circuit)
7 Expansion tank (GAHP/GA circuit)
8 Buffer tank (and hydraulic separator)
9 DHW winter preheating water pump
10 Check valve
11 Heating/Cooling circuit water pump
12 DHW buffer tank
13 Thermostat with adjustable differential for DHW
14 Thermostat with adjustable differential for DHW preheating
15 Thermostat with adjustable differential for Legionella function
16 3-way diverter valves for DHW
17 RB100 device
18 DDC panel
19 Outdoor temperature probe
A Gas connection

Notes:
- Pump 9 of DHW preheating must only turn on if the temperature difference between manifold and buffer tank is sufficient for correct heat exchange on the preheating coil.
- Pump 9 for DHW preheating must be switched off in summer.

4.11 ACOUSTIC

Please refer to Section C01.14.